



Drinking Water Source Assessment and Protection Plan Review Criteria

Guidance for Public Water Systems Using Ground Water



Division of Drinking and Ground Waters
Source Water Assessment and Protection Program

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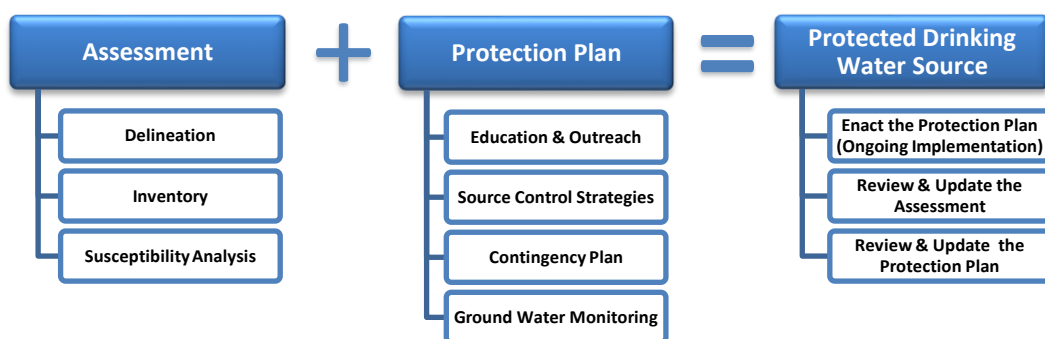
INTRODUCTION

The purpose of this document is to describe the criteria that are used by Ohio EPA Source Water Assessment and Protection Program (SWAP) staff to determine the acceptability of Delineation Reports, Potential Contaminant Source Inventory Reports, and local Drinking Water Source Protection Plans. It is intended for three primary audiences: (1) Ohio EPA reviewers, to help them review these reports and plans consistently statewide; (2) local officials, public water system staff, and their consultants preparing a Delineation Report and/or a Potential Contaminant Source Inventory Report; and (3) municipal community public water systems developing a Drinking Water Source Protection Plan. **This document addresses these reports and plans for ground water systems only.**

Background

This document merges guidance and review criteria developed originally for Ohio's Wellhead Protection Program (approved by US EPA in 1992), with those developed later for Ohio's Source Water Assessment and Protection Program (initiated in 1999). The source water assessment and protection process involves:

- Designating an area around the well(s) to be protected (Delineation);
- Inventorying the potential contaminant sources in this protection area (Inventory);
- Determining the susceptibility of the aquifer to contamination (Susceptibility Analysis);
- Developing a plan for protecting the aquifer from contaminant sources (Protection Plan);
- Enacting the Protection Plan (Implementation);
- Reviewing and updating the Assessment (Delineation, Inventory, Susceptibility) and the Protection Plan.



As new wells and wellfields are proposed, Ohio EPA staff are prepared to assess them. Public water systems may choose to complete their own delineations and inventories but if they do not, Ohio EPA staff are responsible for this work. Public water systems that provide water to a political subdivision are encouraged to develop and implement a Protection Plan for their protection area(s). If requested, Ohio EPA staff are available for technical assistance.

Ohio EPA SWAP program staff will continue to:

- **Provide Assessments** (delineation, inventory and susceptibility analysis) for any new wells or wellfields that are approved by Ohio EPA (unless the public water system wishes to complete its own Assessment), using the procedures in the Source Water Assessment Process Manuals for Delineation and Potential Contaminant Source Inventory (available on the Ohio EPA Website).
- **Provide a Susceptibility Analysis** of any new protection area, whether it is delineated by Ohio EPA staff or by outside consultants, using the procedures outlined in the Source Water Assessment Susceptibility Analysis Process Manual (available on the Ohio EPA Website).
- **Review for endorsement Delineations and Inventories** that are independently completed and submitted by public water systems, using the criteria presented in this document, which are based on the manuals that were developed for these steps under the Wellhead Protection Program and the Source Water Assessment and Protection Program (see the Additional Resources section at the end of this document).
- **Review for endorsement Protection Plans** submitted by public water systems, using the criteria presented in this document, which are based on the guidance document titled *Developing Local Drinking Water Source Protection Plans in Ohio* (available on the Ohio EPA Website).

Additional resources, including process manuals, are listed at the end of this document.

Submittal Process

When submitting a Delineation Report, a Potential Contaminant Source Inventory Report, or a Protection Plan for endorsement, the document should be sent to Ohio EPA SWAP staff in the appropriate district office. Refer to the Ohio EPA Contact Information section at the end of this document for contact information. The public water system responsible for protecting the drinking water source should submit the document to Ohio EPA. Although consultants may be retained, it is important that the document reflect the intentions of the public water system responsible for protecting the drinking water source, therefore it should be submitted by that public water system to Ohio EPA.

Ohio EPA SWAP staff will review the document and respond to the public water system within 60 days. The response consists of a cover letter and a statement of endorsement or comments describing what needs to be done for endorsement. If the submitted delineation and inventory are endorsable, Ohio EPA will complete a Susceptibility Analysis for the protection area and enclose it with the endorsement letter or send it within 30 days.

ENDORSEMENT CRITERIA – DELINEATION REPORT

Delineation Reports that are independently completed and submitted by public water systems will be reviewed for endorsement by Ohio EPA SWAP staff using the criteria listed below:

Delineation Report

Introduction

- ☐ A map of the wellfield(s) and the surrounding area
- ☐ Population served
- ☐ Current and expected usage (gallons per day or million gallons per day)
- ☐ Number of wells in place and number of wells currently being used

Hydrogeologic Setting

- ☐ A description of regional and local geology
- ☐ Sources of aquifer recharge (precipitation, upgradient ground water, streams, etc.)
- ☐ Identification of aquifer as confined, unconfined or semi-confined
- ☐ Identification of all significant and active pumping centers in the area
- ☐ Identification of all hydrogeologic boundaries
- ☐ Potentiometric map of the aquifer, including locations of wells where the water level was measured
- ☐ Well logs for the public water supply wells
- ☐ Well logs for other local wells
- ☐ A discussion of the sources of information on the aquifer (maps, USGS studies, etc.)
- ☐ A discussion of the susceptibility of the aquifer
- ☐ Cross-sections of the aquifer geology

Delineation Method

- ☐ A rationale for choosing the delineation method used
- ☐ A description of the method(s)/computer model(s) used for the delineation
- ☐ The simplifying assumptions of the method(s)
- ☐ The value or range of values for all input parameters used in the model(s)
- ☐ Where computer modeling is used, a sensitivity analysis on the input parameters
- ☐ A map showing the boundaries of the delineated protection area(s), based on a five-year time-of-travel. If available, also provide boundaries in GIS-compatible format.

Review and Update

- ☐ A schedule to review and update the assessment in accordance with OAC 3745-87-03

Refer to the Background Information section of this guidance for a more detailed description of the delineation process.

ENDORSEMENT CRITERIA – INVENTORY REPORT

Potential Contaminant Source Inventory Reports that are independently completed and submitted by public water systems will be reviewed for endorsement by Ohio EPA SWAP staff using the criteria listed below:

Inventory Report

Introduction

- ☐ A map of the wellfield(s) and the surrounding area
- ☐ Population served
- ☐ Current and expected usage (gallons per day or million gallons per day)
- ☐ Number of wells in place and number of wells currently being used

Potential Contaminant Source Inventory

- ☐ A narrative of the methodology used to conduct the inventory
- ☐ RCRA, CERCLA and BUSTR databases (at a minimum) should have been checked
- ☐ Discussion of a visual survey of the area in and around the protection area, including the date conducted, with whom, etc.
- ☐ A description of any planned (or completed) site visits
- ☐ A description of historical land use
- ☐ A table of the potential contaminant sources
- ☐ A map of the potential contaminant sources (if available, also provide points in GIS-compatible format), which must include:
 - ☐ locations of all potential contaminant sources identified, including oil and gas wells
 - ☐ locations of the public water supply wells
 - ☐ major transportation routes (highways, railroads, etc.)
- ☐ A description of the land use
- ☐ A land use map
- ☐ A zoning map. If the area is not zoned, this should be noted within the report.
- ☐ A map showing areas without sanitary sewers and/or discussion of these areas
- ☐ Identification of areas with underground fuel oil tanks
- ☐ Identification of areas with storm drainage wells
- ☐ Identification of any abandoned water wells
- ☐ Discussion of how, and how often, the inventory will be updated

Review and Update

- ☐ A schedule to review and update the assessment in accordance with OAC 3745-87-03

Refer to the Background Information section of this guidance for a more detailed description of the inventory process.

ENDORSEMENT CRITERIA – PROTECTION PLAN

Drinking Water Source Protection Plans that are submitted by public water systems will be reviewed for endorsement by Ohio EPA SWAP staff using the criteria listed below:

Protection Plan

Introduction / Executive Summary

- ☐ A description of the wellfield including population served, number of production wells and average daily demand
- ☐ A description of the aquifer including its susceptibility to contamination
- ☐ A summary of potential contaminant sources and how they will be addressed

Education and Outreach

- ☐ The membership of the Drinking Water Source Protection Team (at least by title)
- ☐ A description of how the local community will be informed about source water and how to prevent contamination
- ☐ The activities planned and person/position responsible
- ☐ The target audiences for each activity
- ☐ A timeline for conducting these activities (for both one-time and on-going activities)

Drinking Water Shortage / Emergency Response

Drinking Water Shortage:

- ☐ The short- and long-term alternative sources of drinking water that may be available
- ☐ A discussion of the financial mechanisms that could be used to implement those alternatives
- ☐ A brief discussion of any water supply planning for future needs

Emergency Planning:

- ☐ A statement acknowledging that the following emergency planning items are addressed in the contingency plan, or include the following in the protection plan:
 - ☐ Identify emergency response actions for spills and inadvertent releases in the drinking water source protection area (DWSPA)
 - ☐ The method for coordinating with the local emergency responders
 - ☐ Identify the chain of command, telephone numbers, and back-up staff that will address releases in or near the drinking water source protection area

Potential Contaminant Source Control Strategies

For each type of potential pollution source in the DWSPA:

- ☐ The strategies that will be used for that type of source
- ☐ How these strategies will be implemented
- ☐ A timeline for implementing the strategies
- ☐ Identify individuals (by name and/or title) responsible for the implementation of the strategies

Ground Water Monitoring

- ☐ An assessment of the need for ground water monitoring

If a public water system decides that ground water monitoring IS NOT needed:

- ☐ A discussion of the reasons ground water monitoring is not needed

If a public water system decides that ground water monitoring IS needed:

- ☐ An explanation why ground water monitoring is needed
- ☐ A map of the area showing:
 - ☐ The locations of the proposed monitoring wells
 - ☐ The public water supply well(s)
 - ☐ The drinking water source protection area
 - ☐ The contaminant sources
- ☐ A description of the pollution source(s) and contaminant(s) each well is intended to monitor
- ☐ The construction details of the planned well(s) including:
 - ☐ Total depth
 - ☐ Screened intervals
- ☐ The sampling schedule and frequency of monitoring
- ☐ A list of parameters that will be monitored
- ☐ A description of the actions that will be taken if an exceedance of a monitored contaminant is detected.

Protective Strategies Table

- ☐ Include a protective strategy for each potential contaminant source identified
- ☐ List the potential contaminant sources associated with each protective strategy
- ☐ Provide a timeline for implementing each protective strategy
- ☐ Identify individuals (by name and/or title) responsible for the implementation of each protective strategy

Review and Update

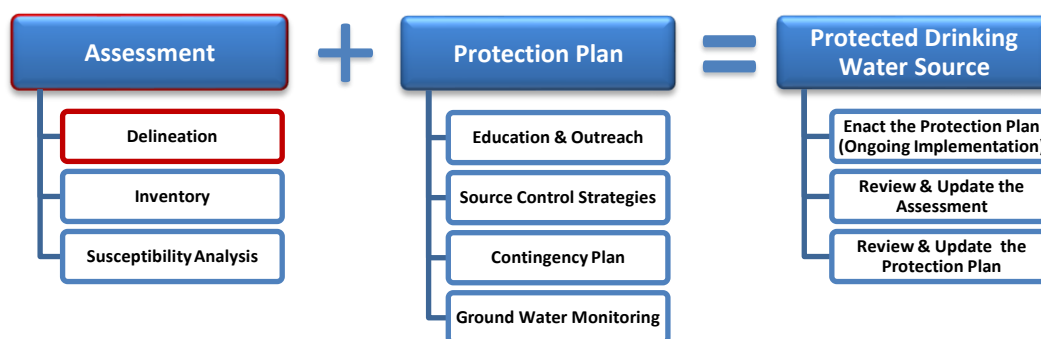
- ☐ A schedule to review and update the protection plan in accordance with OAC 3745-87-03 and if applicable, OAC 3745-91-10.

Refer to the Background Information section of this guidance for a more detailed description of the protection planning process.

BACKGROUND INFORMATION

Following is a more detailed description of the processes for developing Delineation Reports, Inventory Reports, and Drinking Water Source Protection Plans for a public water system.

Delineating Drinking Water Source Protection Areas



Before developing a drinking water source protection plan, the area to be protected must be delineated. The drinking water source protection area is the area around a public water supply well or well field that contributes water to the well or well field, and that will be the focus of ground water protection efforts. Protection areas vary in size depending on local geologic conditions and pumping rate.

Ohio EPA requires that the drinking water source protection area be composed of the one-year and five-year ground water travel time. In other words, a water molecule at the boundary of the five-year time-of-travel zone (the source water protection area or outer management zone) should take approximately five years to enter the public water supply well (Figure 1). The five-year time-of-travel zone is used in Ohio to allow for a sufficient warning and response time should ground water contamination be detected at the protection area boundary. The one-year time-of-travel zone (or the inner management zone) is the area that contributes ground water to a well or wellfield within one year of pumping. A chemical spill in this zone poses a greater threat to the drinking water, so this area warrants more stringent protection.

There are several methods that can be utilized to determine the protection area. These range from hand calculated methods to using computer generated models. The complexity of the local geology and hydrogeology, the existing data, and the availability of resources (both financial and technical) will determine what method(s) should be used.

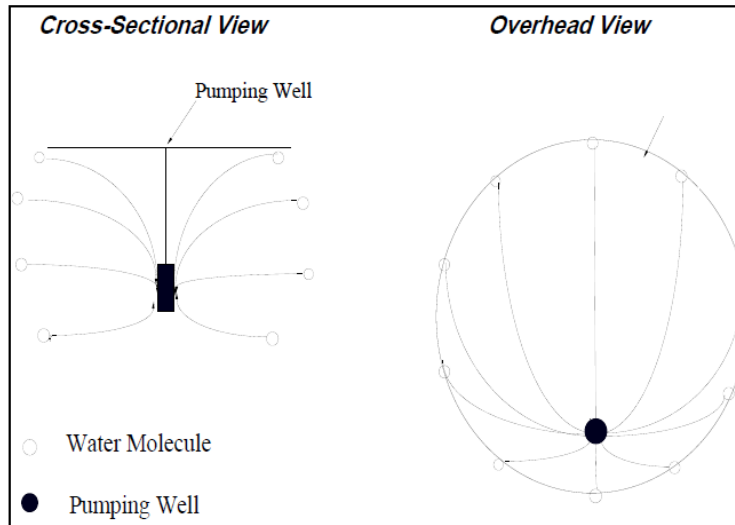
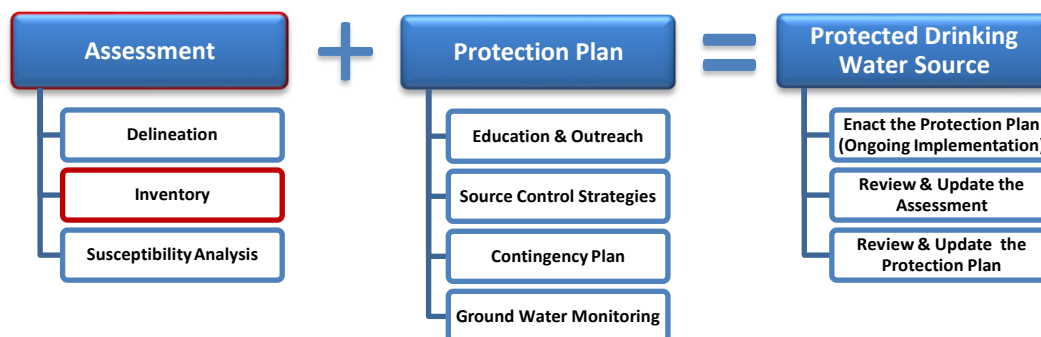


Figure 1. Schematic showing a water molecule moving toward a pumping well in the five-year time-of-travel zone.

Detailed guidance on this subject, written for environmental consultants, is found in Ohio EPA's *Wellhead Protection Area Delineation Guidance* (1994), which is available on-line at [epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/source-water-protection-and-underground-injection-control-\(UIC\)/source-water-assessment-and-protection-program](http://epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/source-water-protection-and-underground-injection-control-(UIC)/source-water-assessment-and-protection-program). An equivalent document is the *Delineation Process Manual (revised December 2014)*, which is also available on-line. Because delineating a protection area requires some technical expertise, public water systems who wish to complete their own delineations typically seek outside assistance with this step. Most commonly the assistance comes from environmental consulting firms, but other options include university students, retired geologists or engineers, or local planning agencies. Whoever is chosen should be fully familiar with hydrogeologic investigations, ground water modeling, and with Ohio EPA's Source Water Assessment and Protection Program.

Any public water system intending to complete its own assessment should notify Ohio EPA as soon as possible, preferably shortly after the well or wellfield site is accepted. Otherwise, Ohio EPA staff will complete the assessment as soon as well locations and planned pumping rates are established. Ohio EPA will review any submitted delineations for accuracy and completeness.

Conducting a Potential Contaminant Source Inventory



Before developing a Drinking Water Source Protection Plan all potential contaminant sources near and within the protection area must be inventoried. The potential contaminant source inventory identifies possible current or future sources of contamination that might affect a public drinking water resource. The potential contaminant source inventory is less technical than the delineation, and consequently the public water system or a group of local citizens may choose to do it themselves.

A good way to initiate the inventory is to view the protection area on an aerial photo. This provides a good sense for the distribution of major landforms, rivers, and streams, and the approximate degrees of urbanization, in the vicinity of the protection area. Aerial photos and zoning maps also indicate common land use activities. Examples of land use activities include:

- Industrial areas
- Residential and commercial areas
- Agricultural areas
- Roads, highways and railroads
- Mining or quarry operations

Land use activities dictate the kinds of potential pollution sources that the inventory will identify. Some of the more common types of potential pollution sources found in Ohio are:

- Chemical storage
- Underground storage tanks
- Fertilizer/pesticide applications
- Animal feedlots
- Road salt usage and storage
- Sanitary landfills
- Underground injection wells
- Septic tanks and drain fields
- Manufacturing storage and disposal
- Mines
- Abandoned wells

These sources do not necessarily threaten public drinking water supplies. However, unless managed properly, they have the potential to do so.

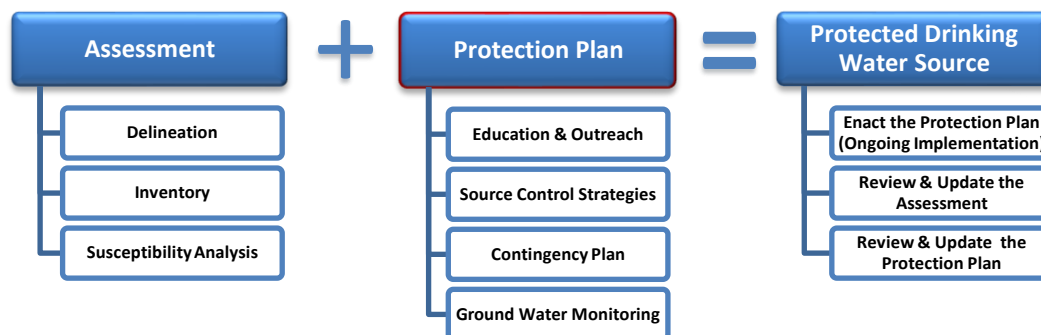
The potential pollution source inventory identifies and catalogs basic information about the potential sources within the protection area to provide the necessary information to develop an effective protection plan. Completing the inventory involves several basic activities:

- Search data bases to collect data and records from local, state, and federal agencies;

- Conduct visual surveys within and around the wellhead protection area;
- Complete site visits and personal interviews;
- Verify accuracy of data;
- Summarize information in a report.

Detailed guidance on this subject is found in Ohio EPA's *Guidance for Conducting Potential Pollution Source Inventories in Wellhead Protection Areas* (1997), which is available on-line at [epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/source-water-protection-and-underground-injection-control-\(UIC\)/source-water-assessment-and-protection-program](http://epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/source-water-protection-and-underground-injection-control-(UIC)/source-water-assessment-and-protection-program). An equivalent document is the *Potential Contaminant Source Inventory Process Manual* (revised, 2014), which is also available on-line. This document was developed for Ohio EPA staff completing inventories under the Source Water Assessment and Protection Program. It contains more discussion of processes specific to Ohio EPA's information and computer resources.

Developing a Protection Plan



After the assessment phase has been completed, the next step in the source water assessment and protection process is to develop a Protection Plan. The Protection Plan is a dynamic document intended to be actively implemented and continually reviewed and updated.

A Protection Plan integrates the information collected in the delineation and inventory steps and provides workable strategies for preventing, detecting, and responding to ground water contamination within the protection area. These strategies range from local regulations or ordinances to public education and voluntary action.

It is important that a community's protective strategies are tailored to the community. It must specifically address the potential contaminant sources that have been identified in the protection area. In addition, it should reflect the wellfield's geologic setting and aquifer vulnerability, its financial and administrative resources, and the needs and desires of its citizens.

The Ohio EPA strongly recommends that the Protection Plan be developed by a team composed of representatives of local organizations and individual citizens (Table 1). Members should include individuals who will play a role in implementing the protective strategies as well as those who could be impacted by its requirements. Local citizens are in a better position to decide what protective options will work best for the community. Local involvement is critical to creating a commitment to implementing the protective strategies. At a minimum, the committee should include the public water supply manager and representatives of those governmental bodies that have authority over land included in the protection area and citizens who own land or operate businesses within the protection area. The goal is to develop protective strategies that not only help protect the source of public drinking water, but also reflect the needs and desires of the community.

Table 1. Potential members of the Protection Planning committee.

- Local government representation
- Township government representation
- County government representation
- Regional planning commission
- Local emergency Planning Committee (LEPC)
- Local and township fire department
- Public works director
- Local health departments
- Soil Conservation Service
- Private industry representation
- Local farmers
- Local developers
- Community service organizations
- Local Chamber of Commerce
- Public interest and/or environmental groups
- Local teachers or education professionals
- Senior citizens groups
- Local newspapers
- Local radio stations
- Retired local experts
- Residents

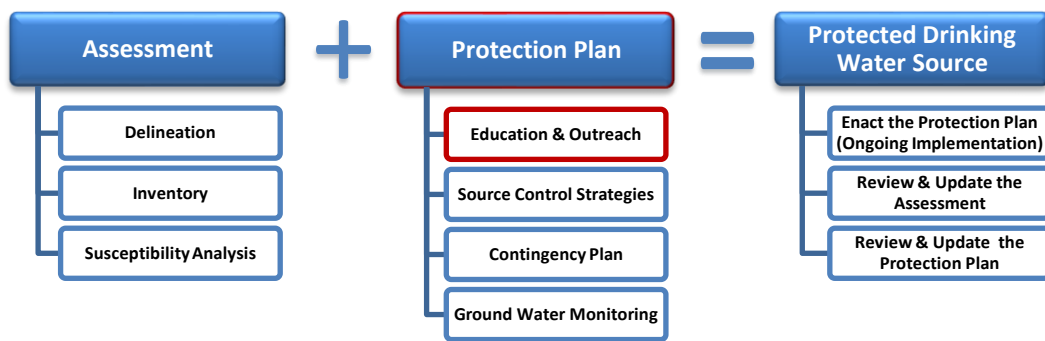
Components of a Protection Plan

The goal of protective strategies is to prevent contamination of ground water supplying the public water supply well(s) and to ensure a continuous supply of safe potable water. This goal is best realized through a combination of protective approaches. Components that must be discussed as part of an endorsable drinking water source protection plan include:

- Education and outreach
- Source control strategies
- Contingency/emergency planning
- Ground water monitoring

Because it is important that these components are integrated, all components should be developed and submitted together for endorsement. Developing protective strategies for a particular potential contaminant source may include approaches from several of these protective components. For example, managing septic tanks in a drinking water source protection area could consist of regular septic tank inspections by order of a local ordinance (Source Control Strategies) and an education program on septic tank maintenance (Education and Outreach).

Detailed guidance on developing and implementing a protection plan is found in Ohio EPA's *Developing Local Drinking Water Source Protection Plans in Ohio* (for public water systems using ground water) (2003), which is available on-line at [epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/source-water-protection-and-underground-injection-control-\(UIC\)/source-water-assessment-and-protection-program](http://epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/source-water-protection-and-underground-injection-control-(UIC)/source-water-assessment-and-protection-program). Following are summaries of each component of a complete protection plan.



Education and Outreach Component

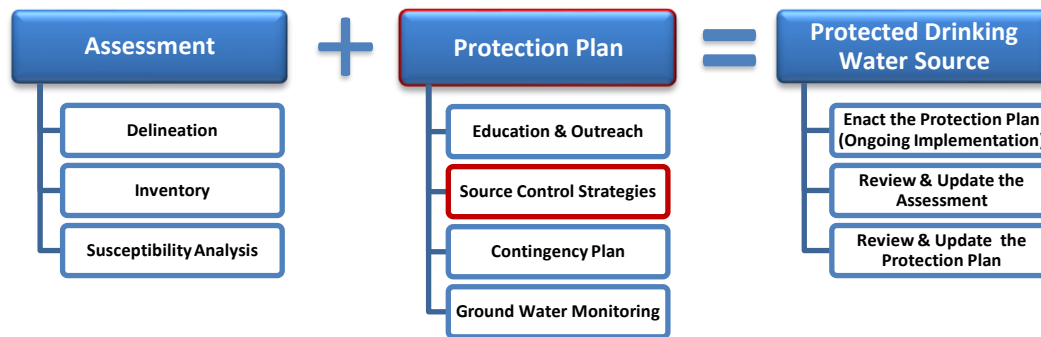
The overall success of protective strategies depends upon the cooperation of people living and working within the protection area. Citizens in the protection area need to understand that their actions can affect the quality of their drinking water. They also need to understand how they can change their actions to prevent contamination from occurring. Education is the key to ensuring this awareness and therefore it is the cornerstone to an effective protection plan.

Educational programs can be focused on business owners, households, school children, civic organizations, workers or the community at large, depending on which type of potential contaminant source is targeted. Some of the more commonly used educational tools include:

- Inserts in water bills about source water protection
- Signs along streets and highways indicating the presence of a source water protection area
- Posters in public places informing people about source water protection
- Public meetings
- Employee training on materials handling practices, emergency spill situations, and source water protection
- School field trips to the protection area and to potential contaminant source sites
- Presentations at business, community, and school meetings

This component of a protection plan must not only discuss how the community will be informed about Drinking Water Source Protection and how to prevent contamination, but also how the thoughts, opinions, and expertise of individuals in the community were obtained, considered and incorporated into the protection plan. Through open communication and public involvement, local officials can promote public trust and confidence, and ultimately develop protective strategies that not only help protect the source of public drinking water, but also reflects the needs and desires of the community.

Ohio EPA SWAP staff are available to assist in education efforts. In addition to giving presentations, Ohio EPA can provide a variety of tools, including a video, fact sheets, and a sand tank model demonstration that simulates ground water flow and contaminant transport.

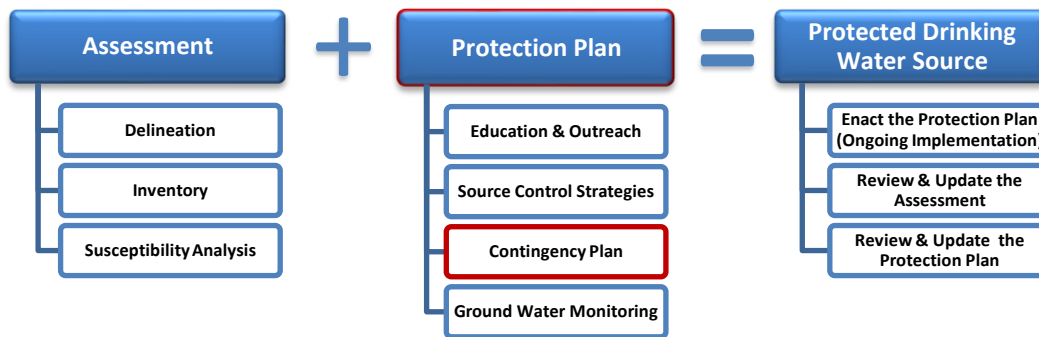


Source Control Strategies Component

This component of a protection plan describes specific actions that may be used to reduce the risk of ground water contamination from specific potential pollution sources within the protection area. A few of the more commonly identified strategies, many of which are addressed through current regulations, include:

- **Source Prohibitions.** The source (type of facility, land use or specific chemical) is not permitted to exist in the protection area. These are usually achieved through zoning ordinances but may also be implemented through the purchase of land or development rights, or by obtaining an easement, deed restriction, or restrictive covenant.
- **Source Restrictions.** The source may exist in the protection area in restricted amounts (usually implemented through the same mechanisms as listed for source prohibitions).
- **Design Standards.** The source must meet certain design standards, such as berms, impermeable storage surfaces, overfill protection, leak detection systems, secondary containment systems, etc. (often required through building codes or by overlay ordinance; may be promoted as voluntary practices).
- **Operating Standards.** The source must meet certain operating standards such as periodic inspection, testing and maintenance (often required through an ordinance; may be promoted as voluntary practices).
- **Reporting Requirements and Documentation.** Owners/operators are required to report the types and quantities of chemicals used, stored and disposed of on the property and document source protection efforts with the Drinking Water Source Protection coordinator (often implemented through an ordinance, but may be voluntary).

The type of source control strategy to implement is a local decision that should be based on input from the people affected by the strategy. The expertise of those individuals responsible for implementing the control strategies should also be considered. Some communities may choose not to use any additional source control strategies beyond existing state and federal regulations. In cases where no regulations apply, however, the protection plan must explain how the other protective elements (education, contingency planning, and ground water monitoring) adequately address each type of identified contaminant source.



Contingency Plan Component

The Ohio Source Water Assessment and Protection Program requires that a public water system build on its existing contingency plan (as required by OAC 3745-85 and ORC 3750) to address both water supply planning and emergency spill response.

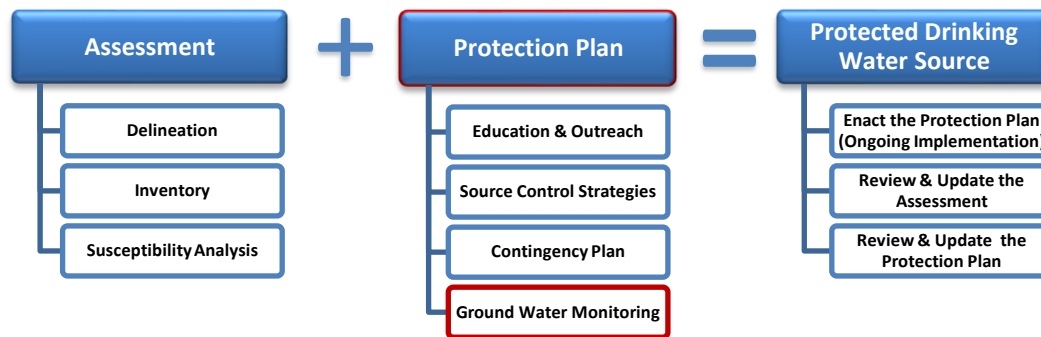
Water Supply Planning:

OAC 3745-85-01 requires that public water systems identify both short- and long-term alternative sources of water, and financial mechanisms for implementing those alternatives should the existing water supply become unusable due to contamination. The program further recommends that a system conduct water supply planning to help ensure an adequate supply of water for future population needs. Typical planning options include:

- identifying sites for future wellfields;
- securing land for future wellfield expansion;
- planning the purchase of water from a neighboring community; and
- developing a surface water source.

Spill Response:

Public water systems must coordinate their contingency plan with emergency planning requirements of the federal Superfund Amendments and Reauthorization Act (SARA) of 1986. Systems need to coordinate with the local emergency planning committee (LEPC) to plan appropriate responses in the protection area. Specialized responses may need to be adapted for spills/accidents occurring within or adjacent to a protection area, particularly one located on a highly sensitive (i.e., very permeable) aquifer. For example, if a facility located in a sensitive setting burns or explodes, spraying it with water may not be the best response, unless there's a reliable way to prevent the water from infiltrating into the aquifer. For wellfields that are susceptible to infiltration of contaminants, emergency response is a critical element of the protection plan.



Ground Water Monitoring Component

The need for ground water monitoring is dependent upon the vulnerability of the aquifer being used, the presence of contaminant plumes and point sources, and the protective approaches selected to protect the aquifer. Because of the technical nature of this subject, a community may need assistance from a ground water professional when developing a ground water monitoring plan and drafting this section.

It should be recognized that ground water monitoring is not a preventive strategy; rather, it provides information that may lead to reactive strategies. However, ground water monitoring can serve several important functions:

Early warning. If wells are properly sited, monitoring can provide early warning of contaminant plumes from specific point sources, so that corrective actions can be taken before the public water supply is affected.

Tracking ground water quality trends. In source water protection areas where nonpoint sources pose a threat, ground water monitoring may warn of generally rising levels of contaminants, so that corrective actions can be initiated. A common example of this kind of contaminant problem is widespread high levels of nitrates, usually related to agricultural activities.

Evaluating effectiveness of selected protective practices. Every program should be scrutinized for its effectiveness and Drinking Water Source Protection is no exception. Unfortunately, it is difficult to evaluate the effectiveness of preventive programs. Ground water monitoring enables this kind of evaluation in some cases. For example, if high nitrate levels are a problem, specific actions may be taken to lower nitrate levels (such as upgrading septic systems and encouraging Best Management Practices for agricultural use of fertilizer). By monitoring nitrate levels in the ground water throughout the affected area, the effectiveness of these protective strategies can be evaluated.

If a community decides that it does not need ground water monitoring wells, this decision must be explained in this component of the protection plan. If it is decided that a ground water monitoring network is necessary, the network must be designed to provide early warning of ground water contamination from high priority sources. If a system is monitoring for a specific contaminant, or suite of contaminants, the plan should also indicate what actions will be taken in response to detection at a specific level.

Any proposed monitoring well network should be located and constructed in a fashion dictated by local ground water flow patterns, hydrogeologic conditions, and potential contaminant threats. Wells should be sampled at a frequency that will allow for adequate response time to implement remedial actions should contamination be detected. Detailed information on how to design a ground water monitoring plan for drinking water source protection purposes is available in a document titled *Source Water Protection Monitoring Guidance* (1999), available on the Ohio EPA Website ([epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/source-water-protection-and-underground-injection-control-\(UIC\)/source-water-assessment-and-protection-program](http://epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/source-water-protection-and-underground-injection-control-(UIC)/source-water-assessment-and-protection-program)).

OHIO EPA CONTACT INFORMATION

To learn more about Ohio EPA's Source Water Assessment and Protection (SWAP) Program, to obtain SWAP guidance documents and fact sheets, and to email SWAP staff in your district, please visit the SWAP website at [epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/source-water-protection-and-underground-injection-control-\(UIC\)/source-water-assessment-and-protection-program](http://epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/source-water-protection-and-underground-injection-control-(UIC)/source-water-assessment-and-protection-program). Ohio EPA District (see map) and Central Office contact information is provided below.

Ohio Environmental Protection Agency Division of Drinking and Ground Waters

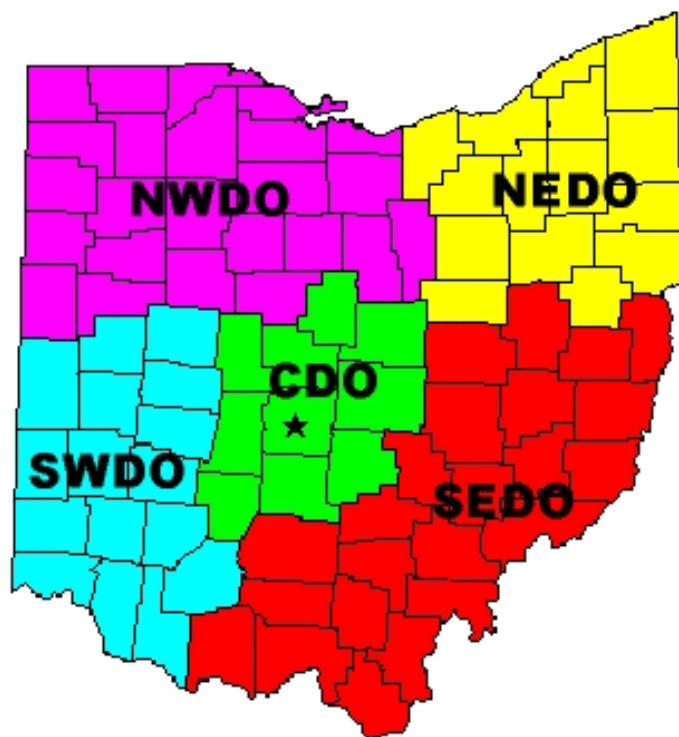
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Southeast District Office

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Logan, OH 43138
(740) 385-8501
1-800-686-7330

Southwest District Office

401 East Fifth Street
Dayton, OH 45402-2911
(937) 285-6357
1-800-686-8930

ADDITIONAL RESOURCES

(The following are available on the SWAP Website at epa.ohio.gov/ddagw/)

Guidance Documents

Wellhead Protection Area Delineation Guidance (1994)

Delineation Process Manual (revised December 2014)

Guidance for Conducting Potential Pollution Source Inventories in Wellhead Protection Areas (1997)

Potential Contaminant Source Inventory Process Manual (revised December 2014)

Source Water Protection Monitoring Guidance (1999, Updated June 2015)

State of Ohio Source Water Assessment and Protection Program (1999)

Developing Local Drinking Water Source Protection Plans in Ohio (for public water systems using ground water) (2003)

Developing Source Water Protection Plans for Public Drinking Water Systems using Inland Surface Waters (2006)

Fact Sheets

Ground Water in Ohio (2003)

Source Water Protection in Ohio (2009)

Video

Ground Water and the Ohio Wellhead Protection Program (1995, 20 minutes)

This video may be viewed at epa.ohio.gov/ddagw/ or on Ohio EPA's YouTube channel at <https://www.youtube.com/user/PIC1049>. The video is designed for viewing by a general audience, from schoolchildren to community officials who may be initiating local Drinking Water Source Protection Plans. The video follows two children as they learn about the source of their drinking water. They learn how ground water flows through the subsurface to the wells that pump it into a water treatment plant. They also learn how ground water can be polluted by pollution sources. Finally, they are introduced to source water protection, and learn how to prevent contamination of the drinking water source.

Coloring Book

Once Upon A Wellfield or ... The Adventures of "Dew"

This 24-page storybook/coloring book tells the story of a good-natured drop of water named "Dew" and her journey through the water cycle. While moving through the subsurface as ground water, Dew has a close encounter with a streetwise drop of benzene ("Bennie") who teaches her about pollution sources. He also tells her about community-led efforts to protect the ground water that is used for public drinking water.